



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/857,967	06/13/2001	Hitoshi Soyama	NAG-112	2606

23353 7590 12/08/2003

RADER FISHMAN & GRAUER PLLC
LION BUILDING
1233 20TH STREET N.W., SUITE 501
WASHINGTON, DC 20036

EXAMINER

KORNAKOV, MICHAEL

ART UNIT	PAPER NUMBER
----------	--------------

1746

DATE MAILED: 12/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

eb9

Office Action Summary

Application No.

09/857,967

Applicant(s)

SOYAMA, HITOSHI

Examiner

Michael Kornakov

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 1 and 6-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,3 and 5 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☒ Claim(s) 1-25 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION***Election/Restrictions***

1. Applicant's election with traverse of claims 2-5 in Paper No. 8 is acknowledged. The traversal is on the ground(s) that the common specific technical feature does exist contrary to the Examiner's statement. However, for the specified groups of inventions as claimed in one and the same international application, the requirement for unity of invention referred to in Rule 13.1 shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. The expression "**special technical features**" shall mean those technical features that define a contribution which each of the claimed inventions considered as a whole , **makes over the prior art**. The inventions listed as Groups I-IV do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, although they share the special technical feature, this special technical feature does not define a contribution over the prior art for the following reasons: coillapsing impact force of the cavitation bubbles does not provide a contribution over the prior art.

Applicant also argues, that "unity of invention has to be first considered in relation to the **independent claims**" (page 2, 3-rd paragraph of paper No. 8). In this respect Applicant's attention is kindly drawn to the fact that the independent claim 2 does not require to pressurize the first vessel, compare to the other independent claims 1, 7, 14, 15, 16, 23, 24, which explicitly require that the first vessel to be pressurized.

Art Unit: 1746

With regard to the Applicants statement that the Examiner cannot show lack of contribution over the prior art of either one of the groups until the rejections have not been formally state, it is noted that the Office policy provides for such rationale in making decisions on unity of inventions.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 1, 6-25 withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim.

3. The limitation "...may be used..." in claim 2 is treated as optional with regard to the entire clause that appears after this recitation on lines 14-15 of page 21.

Claim Objections

4. Claims 2 and 3 are objected to because of the following informalities: while reciting a cleaning **method**, the method performing steps are not clearly emphasized and separated. Applicant is advised to amend the claims according to US practice utilizing preamble with transitional words, such as comprising or consisting of.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 1746

6. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The recited "...both fluids flowing into and out of said vessel 1..." constitutes an indefinite subject matter, at least for two reasons:

a) the parent claim 2 does not recite **fluids** flowing into and out of said vessel 1 and, therefore, then recitation " both fluids" lacks proper antecedent basis.

b) if the recitation of claim 3 "both fluids" describes "a fluid", which is filled into a first vessel and "a fluid", which is filled into a second vessel, as per parent claim 2, the recitation of claim 3 "...the first vessel is pressurized by controlling the flow rates of both fluids... constitutes an indefinite subject matter as per metes and bounds of such are not reasonably ascertainable.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

Art Unit: 1746

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
9. Claims 2, 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chao et al (U.S. 5,316,591) and as evidenced by Butler et al (U.S. 5,778,713).

Chao teaches cleaning substrates, such as complex materials and hardware utilizing cavitation, which is used to mean the formation of bubbles or cavities in a liquid, followed by a collapse of these bubbles (col.1, lines 6-11; col2, lines 52-54). The process of Chao includes the steps of providing a cleaning chamber with cavitation nozzles (50) (reads on "a first vessel", as instantly claimed), providing a substrate to be cleaned, filling the chamber with liquefied gas (reads on "a fluid", as instantly recited) and injecting the liquefied gas into the cleaning zone through the cavitation nozzles to produce cavitations in the cleaning zone (col.7, lines 7-30). The cleaning chamber of Chao is surrounded by external cooling jacket 32. Chao specifically indicates that the cleaning performance decreases below 18°C and provides an external jacket (reads on "a second vessel", as instantly claimed), which is used to maintain the temperature in the cleaning chamber, the external jacket having fluid inlet and outlet (Fig. 1, ref. 32), and therefore filling the jacket with a fluid for such temperature maintenance is inherent in the process of Chao.

In specific regard to claim 3 Chao teaches that in order to produce more vigorous cavitation it is desirable to provide increased pressure inside the chamber, which can be achieved by controlling the pressure of the inlet or outlet fluid stream (paragraph, bridging col.4 and 5).

Chao does not explicitly indicate that a peening effect is applied to the surface of the part to be cleaned. However, it is noticed here, that "peening is defined as the process of altering the surface of a material by impact", as evidenced by Butler (col.1, lines 15-16). Because Chao teaches cleaning (altering) surfaces of different substrates by producing cavitations in the cleaning zone, the striking (impact) of such surfaces by cavitation bubbles is inherent in the teaching of Chao. Besides, it is axiomatic that one who performs the steps of the known process must necessarily produce all of its advantages. Mere recitation of a newly discovered function or property, that is inherently possessed by things in the prior art does not cause a claim drawn to these things to distinguish over the prior art, consult *In Re* Leinoff v. Louis Milona & Sons, Inc. 220 USPQ 845 (CAFC 1984).

The teaching of Chao differs from the instant claims by surrounding the cleaning chamber with external jacket versus accommodating a first vessel **within** a second vessel, as instantly claimed. However, it is noted here that the claimed invention calls for the process claims, wherein the steps of the process are met by the applied prior art, and the structural limitations of apparatus do not present manipulative difference between the claimed process steps and the prior art process. Therefore, the recitation of specific structural limitations of apparatus for performing such steps does not serve to limit the claim. See, e.g., *In re Otto*, 312 F.2d 937, 938, 136 USPQ 458, 459 (CCPA 1963).

Allowable Subject Matter

10. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter: while teaching a cleaning method with the steps similar to the instantly claimed, Chao fails to anticipate or suggest fairly the step of inserting a substance with different acoustic impedance between the cleaning chamber and the external jacket. No other prior art that anticipates or suggests fairly such step has been located as of the date of this office action.

12. Other references cited in PTOL-892 show the general state of the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Kornakov whose telephone number is (703) 305-0400. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (703) 308-4333. The fax phone number for the organization where this application or proceeding is assigned is (703) 872 9310.

Art Unit: 1746

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 2450.

M. Kornakov

Michael Kornakov
Examiner
Art Unit 1746